MULTIMEDIA UNIVERSITY

STUDENT IDENTIFICATION NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2018/ 2019

BPO2064 PRODUCTION AND OPERATIONS MANAGEMENT

(All sections / Groups)

12th MARCH 2019
9.00 a.m to 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 4 pages, excluding the cover page.
2. Answer **ALL** questions. All questions carry equal marks.
3. Answers should be written in the Answer Booklet provided.
4. The students are allowed to use non-programmable calculator

Answer ALL questions. All questions carry equal marks.

(5 x 20 = 100 marks)

Question 1

a. Retail trade, barber and beauty shops, and medical care are important and diverse areas of the Service sector. These industries are large; they account for more than one-third of total Service sector employment— and for almost one-half if government is excluded. They are also representative in several respects. Many of the problems found in connection with retailing are also found in wholesaling and banking; the discussion of medical care has important analogues in education, religious and welfare services, and other professional services; and the lessons to be drawn from the study of barber and beauty shops could be applied profitably to the study of laundry and dry cleaning and other personal services. In two of the studies, medical care and retailing, the problem of measuring real output is particularly great and receives major attention. Discuss challenges in measuring the real output in retail industry.

(10 marks)

b. In responding faster to customers' needs, where might the cost savings come from?

(10 marks)

Question 2

a. It has been said that some companies just need more pride in their work and careful attention to detail in order to achieve very high quality. Yet, Deming and others have said that workers are responsible for only about 20% of quality problems. What else is needed and who is responsible for these factors?

(10 marks)

b. A production process for the JMF Semicon is monitored using x-bar and R-charts. Ten samples of n=15 observations have been gathered with the following results:

Sample	Mean	Range
1	251	29
2	258	45
3	233	36
4	275	25
5	234	35
6	289	20
7	256	3
8	265	19
9	246	14
10	323	46

Continued..

i. Develop a control chart and plot the means (A_2=0.22, D_3=0.35 & D_4=1.65)
(5 marks)

ii. Is the process in control? Explain.
(5 marks)

Question 3

a. Hap Seng Trucks Distribution Sdn Bhd, a wholly-owned subsidiary of Hap Seng Consolidated Berhad is distributing commercial vehicles in Malaysia. The past 10 months sales of the vehicles are given in the table. The company want to forecast for the 11th month using a better forecasting method. Help the company to forecast for the 11th month.

Month	Sales
1	416
2	375
3	390
4	400
5	380
6	420
7	425
8	396
9	375
10	410

i. Use 3-month simple moving average method to forecast
(3 marks)

ii. Use Exponential smoothing method with $\alpha = 0.6$ to forecast
(3 marks)

iii. Use MAPE to evaluate the forecasting methods
(3 marks)

iv. Forecast for the 11th month using a better method.
(1 mark)

b. What is reverse engineering? Do you feel this is unethical? Justify your answer.
(10 marks)

Continued..

Question 4

a. One of the world's largest manufacturers of computer chips, Intel needs little introduction. However, the company needed to make some significant supply chain cost reductions after bringing its low-cost "Atom" chip to market. Supply chain costs of around $5.50 per chip were bearable for units selling for $100, but the price of the new chip was a fraction of that, at about $20.

The Supply Chain Cost Reduction Challenge: Somehow Intel had to reduce the supply chain costs for the Atom chip, but had only one area of leverage—inventory.

The chip had to work, so there were no service trade-offs that could be made. Being a single component, there was also no way to pay less in the way of duties. Intel had already whittled packaging down to a minimum and with a high value-to-weight ratio, the chips' distribution costs could not really be pared down any further.

The only option was to try to reduce levels of inventory, which, up to that point, had been kept very high in order to support a nine-week order cycle. The only way Intel could find to make supply chain cost reductions was to bring this cycle time down and therefore reduce inventory.

Discuss the possible ways of supply chain cost reduction in Intel.

(10 marks)

b. A mail order house uses 850 boxes per year. Carrying costs are RM4 per box a year and ordering costs are RM10. The following price schedule applies. Determine the optimal order quantity and the total cost.

(10 marks)

Range	Price (RM)
1 to 50	20
51 to 80	18
81 to 100	17
Over 100	16

(Hint: TC = Q/2*H + D/Q*S + PD)

Question 5

a. One final product E requires 2F, 1G and 1H. Each F requires 2J and 4D. One G requires 2L and 2J. One H requires 4A and 2D. Prepare the tree diagram for the given details and calculate the gross bill of materials for producing 50 E.

(5 marks)

Continued..

b. Why is there a need for aggregate planning?

(5 marks)

c. What are the benefits and risks of small lot sizes?

(10 marks)

END OF PAPER